VI. Financial markets

Highlights

While still bearing the scars of recent crises, participants in financial markets turned their attention during 1999 to positive prospects for the future and returned to risk-taking with increasing eagerness. An enthusiasm for digital technology and mounting evidence of worldwide economic growth raised the prices of many stocks to new highs. In the credit markets, a similar appetite for risk overcame episodes of liquidity pressure and gradually brought lending spreads down even in the face of record issuance of private debt securities. A rise in long-term interest rates in Europe and the United States was treated as a welcome sign that monetary policy was on hand to steer economies away from inflation while sustaining growth.

Optimism turned to concern

By the first quarter of 2000, market participants began to sense that their enthusiasm had gone too far. In the stock markets, investors abruptly developed a fear of heights that led to wild swings, particularly in the prices of technology stocks. Data released during the quarter created uncertainty as to how much monetary policy would have to tighten. At the same time, supply shocks in the US Treasury market affected prices to an unusual degree. Arbitrage and market-making activity that would otherwise have absorbed these shocks had apparently not recovered from the losses suffered in autumn 1998. The resulting volatility in long yields not only confounded borrowers and investors who depend on that market for benchmark prices, but also clouded the information normally conveyed about macroeconomic prospects.

Asset price changes led to a reallocation of capital

Changes in relative asset prices had real consequences in the form of a reallocation of capital between economic sectors. In the equity markets, the spectacular performance of high-technology stocks helped start-up companies raise record sums through initial public offerings (IPOs), while the seeming underperformance of other stocks led to large buyback programmes that returned funds to shareholders. In the debt markets, fiscal surpluses in the United States and the United Kingdom and diminishing deficits in continental Europe, supported by the narrowing of credit spreads, made room for a remarkable rise in corporate bond issuance that served to transfer savings from central governments to private borrowers.

Major banks invested in surging debt securities markets

Asset prices also helped determine how the world's current account imbalances would be financed. Stock markets supported capital flows, including cross-border acquisitions paid for with equity. The world's major banks themselves invested strongly in the surging debt securities markets and relegated their traditional international lending activity to the sidelines. Emerging market borrowers for their part had little need for foreign bank loans and in fact accelerated their loan repayments. As a result, the international interbank

market was suddenly flush with funds. However, except for acquisition-related deals, banks began to have difficulty finding new borrowers.

Equity markets

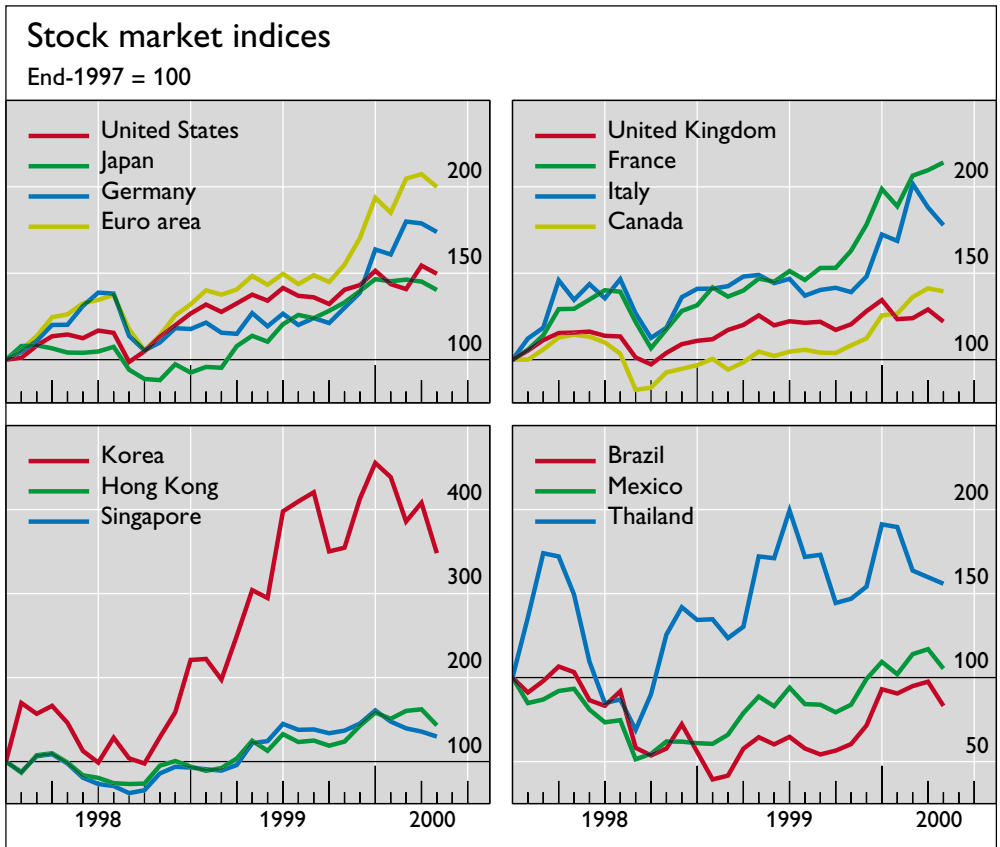
Patterns of performance

Stock markets worldwide set new record highs

Building on the momentum of previous years, stock markets around the world set new record highs in 1999 (Graph VI.1). The strong gains were particularly noteworthy in that they occurred against the backdrop of increases in US and European interest rates. Even the Tokyo stock market, which had been weak for several years, joined the global trend and erased the losses incurred since the start of the recent Asian financial crises. Brazil, Korea, Mexico and other markets recovering from recession were among the best performers in the world. The global pace of advance reached a peak in the final quarter of 1999 before beginning to falter in the new year.

Market gains were driven by technology shares

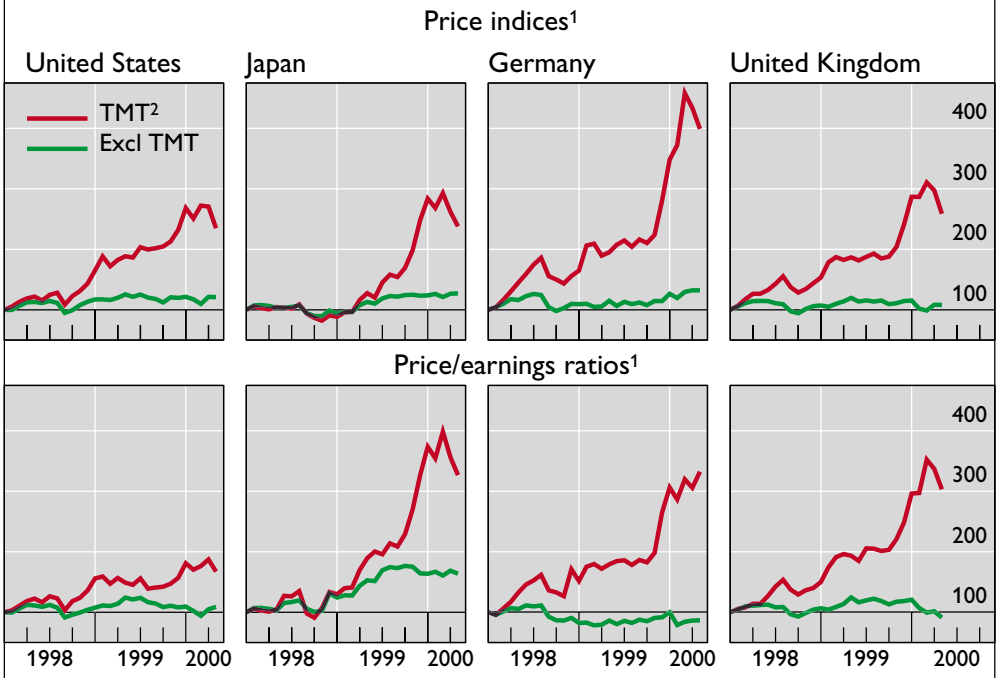
The strength of broad equity indices in 1999 hid marked differences between the performance of "new economy" and "old economy" shares. In the United States, for instance, fewer than half the companies in the S&P 500 index actually posted positive returns for the year. Worldwide, overall market gains were driven largely by digital technology and telecommunications shares, which virtually doubled in value in the United States, the United Kingdom and Germany and almost tripled in Japan (Graph VI.2). The divergence between the



Note: For the emerging market countries, the indices are in US dollar terms.

Sources: International Finance Corporation; national data. Graph VI.1

Segmentation in the equity markets



[1] End-1997 = 100. [2] Technology, media and telecommunications stocks.

Source: Datastream. Graph VI.2

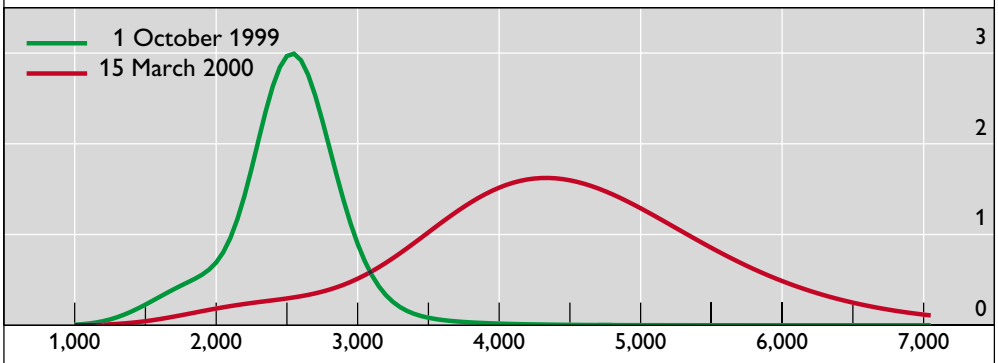
prices of technology and non-technology stocks was most evident in Germany, a phenomenon aided by a takeover premium on telecommunications stocks. The performance of "old economy" sectors also differed between countries. Share prices in these sectors fell in the United States and United Kingdom but rose in Germany and Japan.

The divergence both between national markets and between economic sectors became even more pronounced in the first quarter of 2000 as market volatility rose dramatically. After a brief downturn at the start of the year, equity prices in continental Europe resumed their ascent, while prices in the United States continued to fall. In Japan, the announcement in mid-March that the economy had lapsed back into recession, with a relatively large contraction of output during the fourth quarter of 1999, led to a temporary sell-off of Japanese stocks. In the US market, data releases presented a real economy that seemed impervious to monetary tightening and often triggered wild price swings from one day to the next. Technology and non-technology stocks often played a tug of war, with one sector rising when the other fell. Volatility within the trading day sometimes exceeded what would be normal over several days. On 4 April, for example, the technology-heavy Nasdaq index fell by 13% during the day only to recover most of its losses by the close. The Nasdaq market tumbled a week later, especially after the release of a somewhat high CPI inflation number, and lost $1.4 trillion of its capitalisation. Without any further significant news, the market rose again at the start of the following week.

Technology and non-technology stocks played a tug of war

The volatility in April was preceded by an apparent rise in market participants' uncertainty about future stock prices. As reflected in options prices, this apprehension about possible future price changes seemed to

Implied probability distributions of Nasdaq stock prices[1]



[1] The distributions are "risk neutral densities" based on options traded on the dates shown. The densities are estimated as a mixture of two log-normal distributions.

Sources: Bloomberg; BIS calculations. Graph VI.3

increase even more than realised volatility, particularly for high-technology shares. The prospective volatility priced into exchange-traded options on the Nasdaq index was relatively modest in October 1999, when technology share prices were rising, suggesting a degree of confidence about valuations (Graph VI.3). However, once these share prices started to falter during the first quarter of 2000, the volatility implied by options prices became extraordinarily elevated. As of mid-March 2000, the implied distribution of possible future prices indicated roughly a 25% probability of at least a 20% decline compared to a 15% probability of a such a decline as perceived in October.

Volatility and changing valuations

Roller coaster markets raise questions about valuations

The roller coaster movement of stock markets raises questions about what has been driving the changing valuations. Since equity represents a claim on a company's future distributions to shareholders, its price should move to reflect new information about the firm's earnings, particularly about how fast earnings will grow. In addition, it should reflect the expected return on alternative investments, such as bonds, and an unobservable incremental return that investors demand as compensation for bearing equity price risk, the so-called equity risk premium.

Price swings apparently triggered by very little new information

Recent short-term price swings seem to have been triggered by very little new information. This is not in itself highly unusual, since stock prices historically have risen and fallen by more than can be explained by observed movements in earnings. This "excess volatility" may arise from an irrational fickleness in market participants' behaviour. Movements in the unobservable equity risk premium may capture such behaviour, although it is not clear why the premium should change so much in so short a time. Another possible explanation of why stock prices move as much as they do is the existence of differential information across investors. Some investors may at times hold important private information that they convey to the market only through their trades, so that order flows rather than publicly observed information move the market.

While short-term fluctuations in stock prices are difficult to explain, longer-term movements display empirical regularities that are fairly consistent with economic fundamentals. When valuation indicators – such as dividend

yields and price/earnings multiples – deviate substantially from their normal relationship to the business cycle, the levels eventually revert to the historical average. Typically, low dividend yields or high price/earnings multiples have returned to normal levels as a result of prices falling rather than dividends or earnings rising.

The outlook for equities was not favourable …

Viewed against the backdrop of the historical evidence, the outlook for equities at the end of March 2000 was not favourable. The continued general increase in share prices had taken valuation measures for stock markets as a whole to extreme levels. For instance, dividend yields in the majority of markets were either at, or very close to, historical lows (Table VI.1). Admittedly, the increased inclination of companies to distribute profits to shareholders through share buybacks, rather than through dividend payouts, served to depress dividend yields independently of shifts in the willingness of market participants to bear risk. Nevertheless, stock markets also appeared overvalued when judged on the basis of price/earnings multiples. Although these multiples had generally declined slightly from recent peaks, they were still high by historical standards and even exceeded the levels seen before the stock market break of October 1987.

… and might depend on the sector

The differential performance between "old economy" and "new economy" stocks during the course of last year suggested that the outlook for equities might depend on the specific sector. While price/earnings multiples on "old economy" shares were below market-wide multiples, valuation indicators suggested that even these stocks might be overvalued. Price/earnings multiples of the non-technology sector in the United States and United Kingdom at the end of March 2000 were 23 and 19 respectively, well above their historical averages, even though these countries were at a stage in the business cycle (see Chapter II) which has, at least in the past, been associated with a reduced

Indicators of valuation of share prices[1]

	Dividend yields[2]				Price/earnings ratios[3]				
	Average	Trough		March 2000	Average	Sep 1987	Peak		March 2000
		level	date				level	date	
United States	3.6	1.1	Dec 1999	1.2	15.6	22.3	36.4	Jul 1999	28.3
Japan	1.3	0.4	Jan 1990	0.6	38.8	69.5	85.2	Feb 2000	80.6
Germany	2.7	1.1	Feb 2000	1.2	13.5	14.7	27.4	Jan 2000	22.8
France	4.0	1.6	Mar 2000	1.6	12.5	13.2	30.4	May 1973	26.8
Italy	2.8	1.0	May 1981	1.3	18.3	14.7	36.0	Mar 2000	35.6
United Kingdom	4.7	2.1	Mar 2000	2.1	13.4	15.8	28.6	Jan 2000	28.1
Canada	3.3	1.1	Mar 2000	1.1	12.8	19.5	42.5	Nov 1999	32.8
Netherlands	4.6	1.7	Jan 2000	1.8	11.6	14.5	31.9	Jan 2000	26.5
Switzerland	2.3	0.9	Mar 1998	1.3	13.4	13.9	29.7	Mar 1998	20.1
Sweden	2.5	1.1	Mar 2000	1.1	17.8	23.6	35.6	Mar 2000	34.2
Belgium	4.0	1.3	Jan 1999	2.0	13.3	14.0	29.2	Apr 1973	17.1

[1] Since 1973. [2] For Sweden, since 1982. [3] For Italy, since June 1986; for the United Kingdom, since 1980; for Canada, excluding 1991–94, when the ratio was exceptionally high owing to very low earnings due to write-offs (peak in 1994: 504); for Sweden, since 1982.

Source: Datastream. Table VI.1

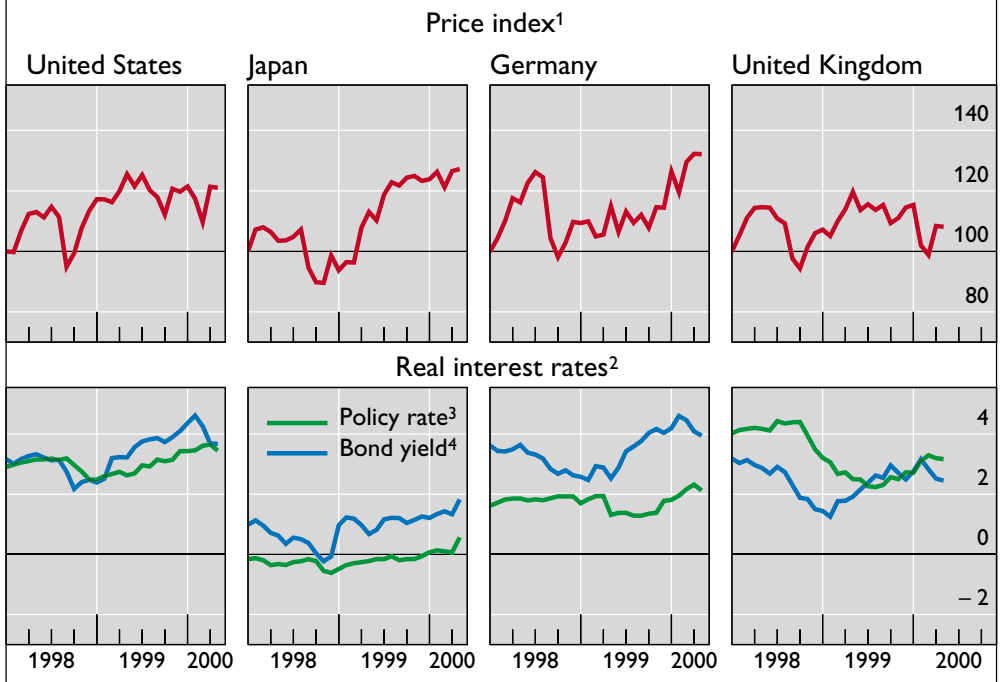
scope for earnings growth. In addition, "old economy" stocks in the United States did not appear to have fully adjusted to increases in interest rates (Graph VI.4).

Indicators suggested greater risks for technology stocks

Traditional valuation indicators suggested even greater risks for high-technology stocks. The price/earnings multiples of these sectors scaled unprecedented heights. At the end of March 2000, they stood at 53 in the United States and 169 in Japan. Such valuations depend partly on earnings growth, which in the long run must converge to the economy's growth. Hence differences in valuations depend on how fast investors expect earnings to grow in the near term, on how long the period of fast growth will last, and on the equity risk premium. Based on historical averages for long-run growth and equity risk premia, investors appear to have been very optimistic about the near-term growth prospects for high-technology companies. The expected earnings growth rate of the US technology sector as a whole, as implied by its price/earnings multiple, was 21% per year in real terms for the next decade, more than five times faster than the real growth of the underlying economy. At the same time, the market expected real earnings per share of technology firms in Japan to grow at an average annual 25% rate over the next decade. Even if the equity risk premium is assumed to have fallen to zero, the implied real earnings growth rates over 10 years would be 12% for the United States and 16% for Japan.

While valuation indicators for many stocks reached extraordinary levels given current earnings, other high valuations seemed to rest wholly on

"Old economy" stock prices and real interest rates



[1] Excluding TMT stocks; end-1997 = 100. [2] Nominal rates less annualised inflation rate over the previous three years, in percentage points. [3] For Germany, from 1999, policy rate as set by the ECB for the euro area. [4] Ten-year government bonds.

Sources: Datastream; national data. Graph VI.4

High valuations did not rest on any track record of earnings

assumptions about prospective earnings rather than on any track record. Indeed, many of the recent high-technology IPOs had no earnings to show, and their assumed earnings growth rates relied on new and untested valuation concepts. Some of these concepts drew their inspiration from relationships such as Metcalfe's Law (Metcalfe was the developer of the ethernet, the precursor to the internet), which states that the value of a network company should be proportional to the *square* of the number of subscribers, because that is the number of possible connections. Such a concept might justify an assumption of spectacularly increasing returns that would not be closely tied to interest rates or the general level of economic activity. Valuations seemed to overlook the fact that a network firm is likely to find and connect the most valuable customers first and, in this case, must inevitably run into diminishing returns. Moreover, such concepts as Metcalfe's Law could not apply to all internet companies, such as "dotcom" retailers, or to all companies within an industry, since there are bound to be losers as well as winners.

Valuation risks and potential economic performance

A shift in sentiment requires very little to precipitate it

The historically high valuations of major stock markets clearly pose risks of a sharp market-wide correction. The high-technology sector would appear to be particularly vulnerable. Yet the non-technology sector also displays valuations that are high by historical standards. While for most of the first quarter of 2000 investors alternately favoured one sector over the other, a shift in sentiment that affected high-technology stocks could well have repercussions for non-technology stocks as well. Such a shift in investor sentiment often requires very little to precipitate it. Large sell orders can come without warning and cause further selling as other investors infer adverse information, whether or not the initial trades were actually informative. Historically this has often led to a general loss of confidence as prices fell unexpectedly.

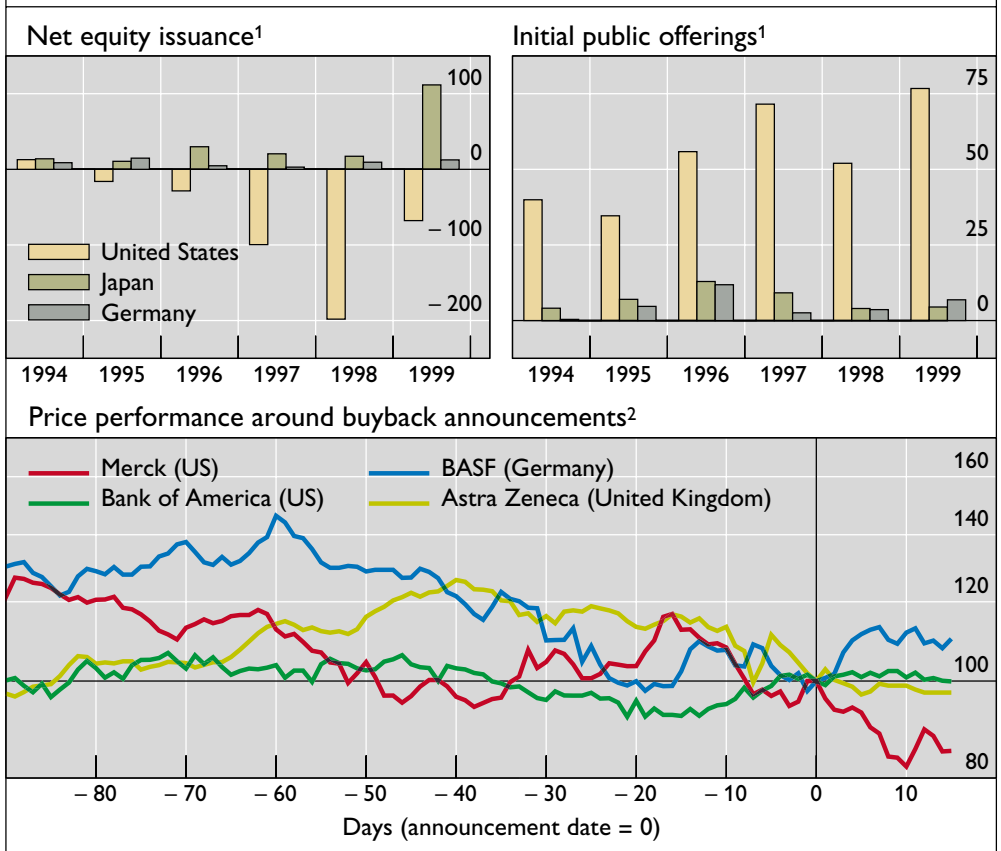
The risks of overvaluation for the real economy are not confined to the possibility that a sharp correction could dampen consumption through a wealth effect or curtail investment through an increase in the cost of capital (see Chapter II). Any misallocation of capital during the expansionary period also implies the need for subsequent adjustment. The real consequences of changes in relative share prices between the technology and non-technology sectors were already evident in the substantial flows of capital between them.

Record sums raised by start-up IPOs

In 1999, investors around the world placed more money in IPOs of start-up companies than ever before, most of it in the technology sector (Graph VI.5). At the same time, non-technology companies with stocks judged to be underperforming continued to announce share repurchase programmes that returned capital to shareholders. An overvaluation of technology IPOs would have encouraged too many business start-ups in that sector, and the resulting overinvestment would mean lower productivity later on. If and when a sharp correction takes place, part of the loss in stock market wealth may properly be attributed to a downward revision of expected future productivity.

The reallocation of capital in 1999 also took the form of cross-border acquisitions, often involving wireless telecommunications firms. These acquisitions helped finance the world's major current account imbalances. The

Equity issuance and price performance around buyback announcements



[1] In billions of US dollars. [2] Defined as the ratio between the company price index and the relevant stock market index (announcement date = 100; semi-logarithmic scale).

Sources: Bloomberg; national data. Graph VI.5

United States and Latin American countries, in particular, financed their external deficits by relying primarily on equity inflows in the form of foreign acquisitions of domestic firms. Indeed, at times the strength of foreign demand for US assets lifted the US dollar even in the face of large deficits. In Europe especially, a wave of mergers and acquisitions swept the telecommunications industry. Unlike the takeover activity of the late 1980s, many of the recent acquisitions around the globe were paid for using the equity of the acquiring company rather than cash. With the advantage of high stock prices, technology companies could take over non-technology companies and potentially use the acquired companies' internal cash flows for their own investment purposes. Whether this reallocation of capital will also have implications for future productivity growth remains to be seen.

Acquisitions were paid for using equity rather than cash

Bond markets

Just as equity markets facilitated a shift of capital-raising from "old economy" to "new economy" sectors, bond markets worldwide accommodated new patterns of borrowing and investment. One particularly important structural trend, which accelerated in the period under review, was the shift of

Borrowing shifted from central governments to the private sector

borrowing activity away from central governments to the private sector. Even as markets absorbed a record amount of private sector debt issuance, however, the prospect of declining government debt issuance in North America and Europe led to a withdrawal of market-making capital and to a search for alternative benchmarks in financial markets. At the same time, the losses in autumn 1998 weighed heavily on the minds of arbitrage investors. These factors contributed to periodic bouts of turbulence in various market spreads, blurring distinctions between credit and liquidity premia.

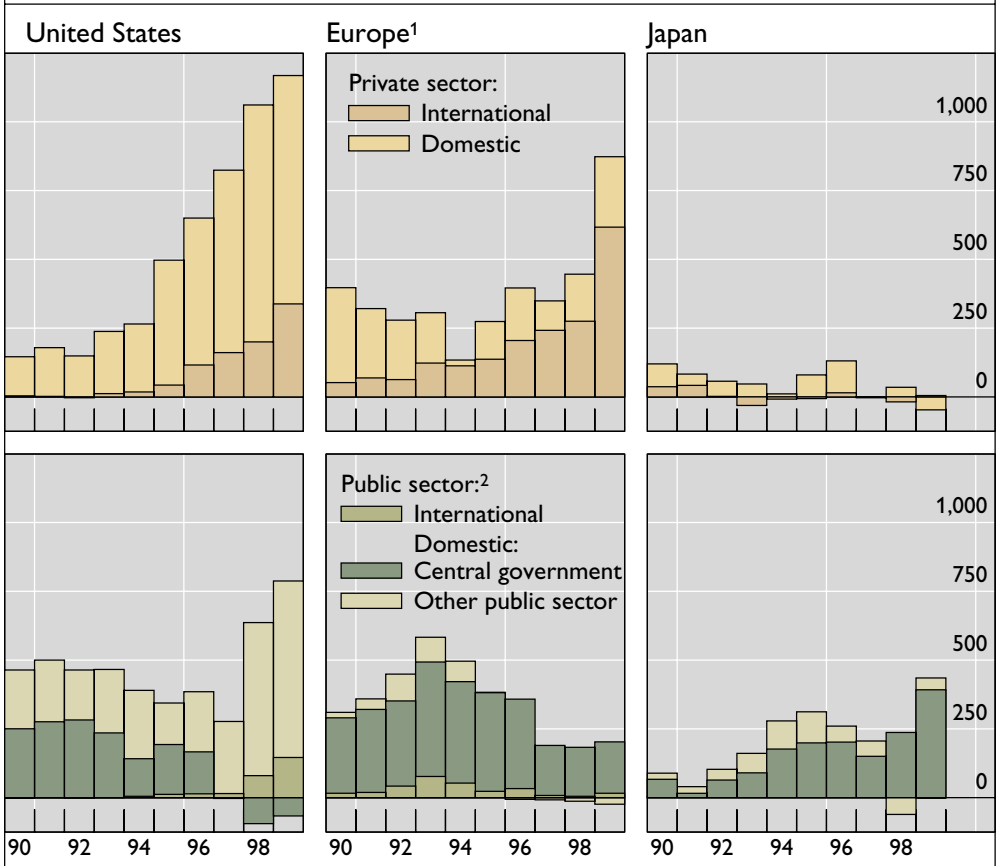
Private sector issuance and credit spreads

The period under review was marked by some easing of traditional measures of credit spreads. However, this was due not only to changing evaluations of creditworthiness, but also to variations in market liquidity and supply side factors affecting both the government debt and interest rate swaps markets.

There was also unprecedented debt issuance by the private sector. As a result of fiscal consolidation, central government issuance in most of the major industrial countries, with the notable exception of Japan, declined or remained flat (Graph VI.6). Any increase in public sector issuance was accounted for by independent agencies and other "quasi-public" entities, such as the housing

International and domestic debt securities markets

Net issues, in billions of US dollars



[1] EU 15 countries, Norway, Switzerland and Turkey. [2] Includes government-sponsored enterprises.

Sources: Bank of England; Capital DATA; Euroclear; International Securities Market Association (ISMA); Thomson Financial Securities Data; BIS. Graph VI.6

finance agencies in the United States. The private sector responded to the new availability of savings by issuing record amounts. Continuing a recent trend, the international debt markets assumed an increasingly prominent role relative to domestic markets. International issuance by private sector borrowers net of repayments more than doubled (Table VI.2). In Europe, international private issuance outpaced domestic issuance, as the introduction of the euro encouraged borrowers to venture beyond their national borders to take advantage of the potential investor pool in the broader euro zone (see Chapter VII).

Private sector responded by issuing record amounts

Booming private sector issuance occurred in the face of steadily rising nominal government yields. Evidence of growth, as well as rising energy prices, led monetary authorities in Europe and the United States to raise policy rates in an effort to pre-empt inflationary pressures. For much of 1999, market expectations of such monetary tightening moves drove up long-term yields. Yields became volatile in the early part of 2000, as market participants reassessed the degree of tightening likely to be needed to forestall inflation and reacted to various liquidity shocks.

The impact of rising government yields was to some extent counteracted by a gradual, if uneven, decline in yield spreads between private and government

Net issuance of international debt securities[1]

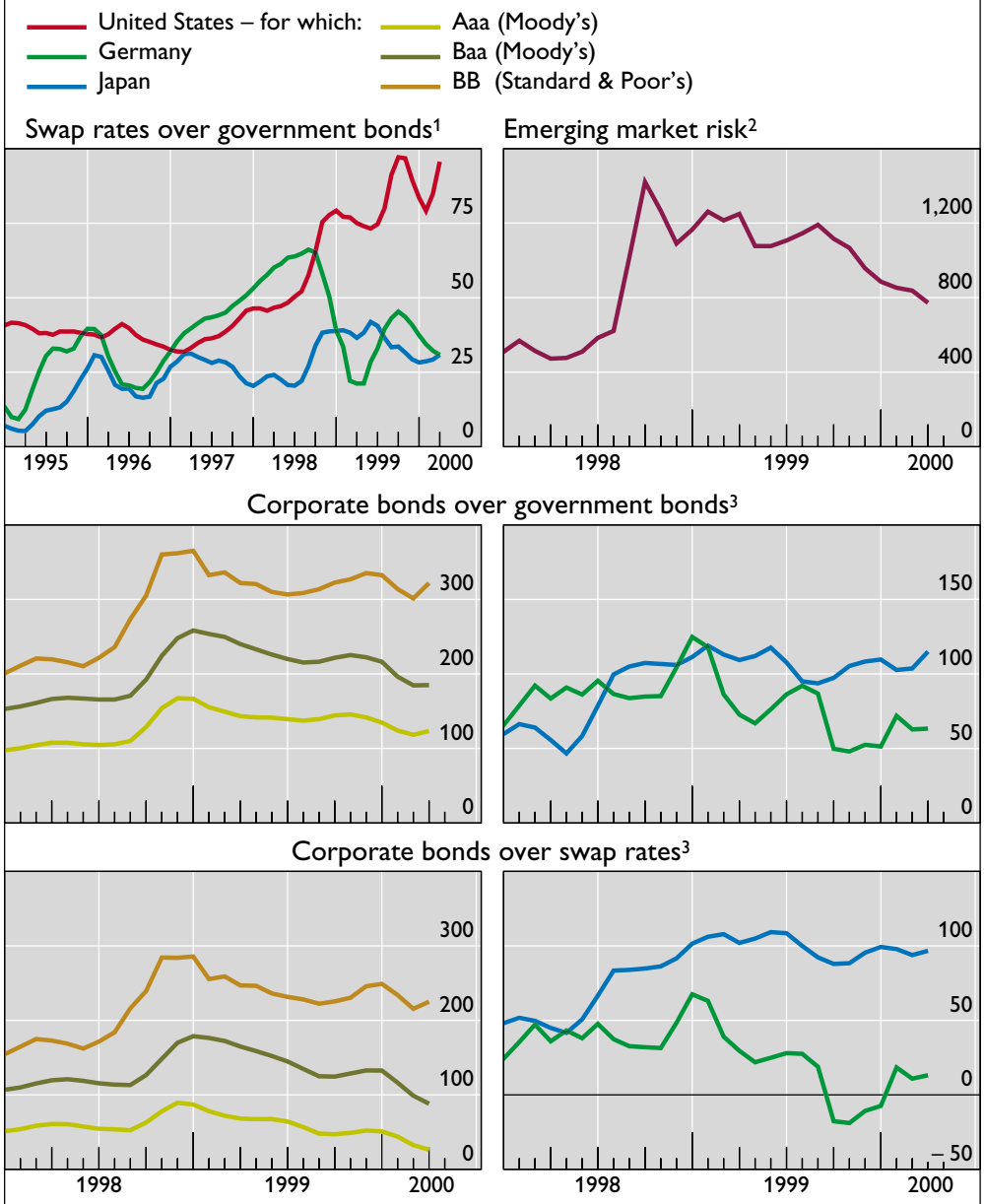
	1994	1995	1996	1997	1998	1999	Stocks at end-Dec 1999
	in billions of US dollars						
Total net issues	251.8	260.6	532.0	563.2	680.9	1,225.2	5,365.5
Money market instruments[2]	4.5	18.7	39.9	14.8	9.8	68.6	260.0
Bonds and notes[2]	247.3	241.9	492.0	548.4	671.1	1,156.6	5,105.5
Developed countries	203.1	226.9	404.2	439.0	574.8	1,149.4	4,503.0
United States	22.9	55.4	130.2	176.0	280.3	484.5	1,310.8
Euro area	126.5	132.1	177.3	172.0	210.7	494.0	1,746.5
Japan	−6.9	−3.8	17.1	−1.3	−17.4	4.1	338.3
Offshore centres	7.2	0.7	17.1	13.9	10.0	15.7	74.7
Other countries	32.5	22.0	87.7	89.1	40.1	35.5	408.0
International institutions	8.9	11.0	23.0	21.2	56.0	24.6	379.8
US dollar	64.4	68.4	259.1	331.6	410.4	546.2	2,512.2
Euro area currencies	80.6	84.2	134.5	133.9	223.6	576.2	1,561.2
Yen	85.3	79.8	85.7	33.4	−26.8	−5.8	536.8
Other currencies	21.4	28.2	52.7	64.4	73.7	108.7	755.4
Financial institutions[3]	134.8	167.0	342.3	355.6	369.5	659.1	2,581.4
Public sector[4]	103.4	72.6	118.9	85.4	178.2	213.5	1,436.3
Central government	50.1	37.3	53.5	31.6	45.1	40.4	459.0
Corporate issuers	13.5	21.1	70.7	122.3	133.2	352.7	1,347.8

[1] International issues include all issues except those by residents in domestic currency not targeted to non-resident investors. Flow data for international bonds; for money market instruments and notes, changes in amounts outstanding excluding exchange rate valuation effects. [2] Excluding notes issued by non-residents in the domestic market. [3] Commercial banks and other financial institutions. [4] Governments, state agencies and international institutions.

Sources: Bank of England; Capital DATA; Euroclear; ISMA; Thomson Financial Securities Data; BIS. Table VI.2

Measured credit spreads

Three-month moving averages, in basis points



[1] Ten-year rates/bonds. [2] JP Morgan emerging markets Brady bond index (EMBI) plus sovereign spread. [3] For the United States, 10-year rates/bonds; for Japan, 12-year; for Germany, four-year.

Sources: Datastream; JP Morgan; national data. Graph VI.7

paper (Graph VI.7). These measured credit spreads had increased sharply in the market turbulence of autumn 1998, when investors fled into the safest and most liquid issues out of concern over the credit quality of emerging market borrowers and of some financial institutions in the industrial countries. The subsequent narrowing of spreads indicated renewed confidence in recovery in the emerging market economies and in the prospects for corporate issuers as growth in industrial countries accelerated. Even at their narrowest points, however, measured credit spreads in the United States and Germany remained above their mid-1998 levels. In fact, swap spreads, which reflect the generally

high credit standing of swap counterparties, did not decline appreciably during 1999 and early 2000. Why did these spreads not fall further in the light of what seemed to be steadily improving conditions and a renewed appetite for risk?

Why did measured credit spreads not fall further?

Liquidity factors in credit spreads

Two structural factors with adverse effects on liquidity seem to have contributed to the width and occasional turbulence of measured credit spreads. First, the anticipation of reduced government debt issuance had led dealers in the secondary market to withdraw some of the market-making capital they use to provide liquidity. This withdrawal seems to have started as early as 1997. Second, the experience of autumn 1998 had left market participants with a legacy of increased sensitivity to liquidity risk, which made leveraged funds and proprietary trading desks reluctant to engage in arbitrage activity that would absorb supply shocks or eliminate relative price distortions across the yield curve. Indeed, some financial institutions may have begun to build liquidity considerations into their risk management. As a result of both structural factors, significant and occasionally volatile liquidity premia have become part of measured credit spreads.

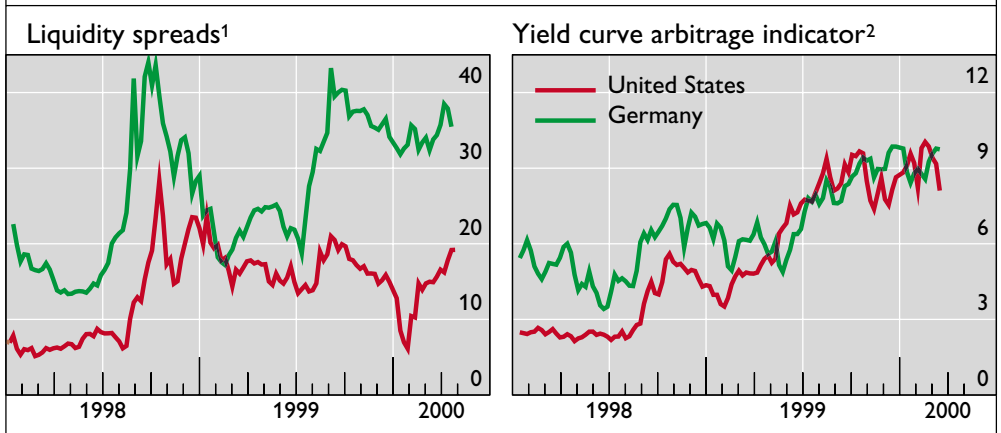
Dealers in the secondary market withdrew some market-making capital

The lack of market-making and arbitrage activity is evident in an increased fragmentation of the government bond markets. Graph VI.8 depicts this fragmentation in terms of spreads between off-the-run and on-the-run issues and in terms of price anomalies. Both measures show that liquidity tended to be lower during 1999 compared with the early part of 1998. For three of the indicators, this continued into the first part of 2000. The US on-the-run premium seems to have narrowed in 2000, which may reflect an increased risk premium on the 30-year bond, deriving from uncertainty surrounding the bond's benchmark status in the wake of the US Treasury's revised issuance plans. The pricing anomalies recorded in Graph VI.8 previously tended to disappear quickly, but now seemed to last longer. As a result, the response of

Pricing anomalies now seemed to last longer

Liquidity in US and German government bond markets

Weekly averages, in basis points

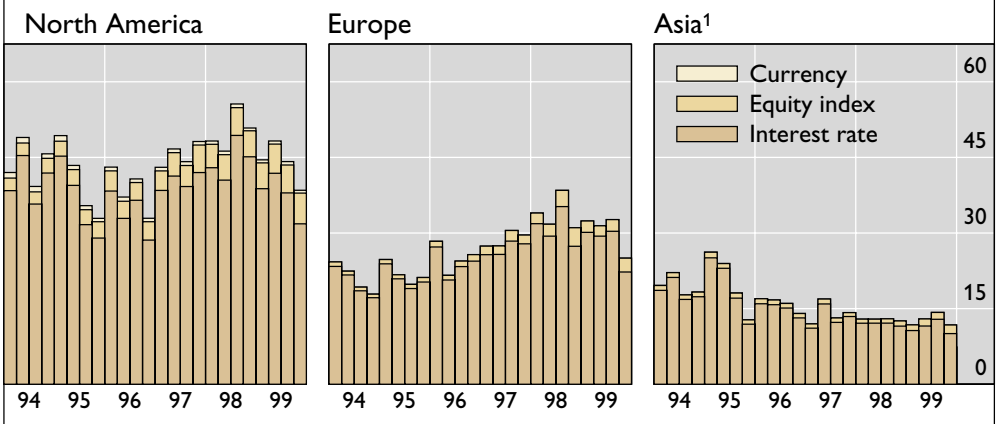


[1] For the United States, twice off-the-run/on-the-run 30-year Treasury bond; for Germany, Kreditanstalt für Wiederaufbau bond/10-year government bond. [2] Measured as the standard deviation of yield differentials for all bond cash flows from a fitted zero coupon curve.

Sources: Bloomberg; Datastream; BIS calculations. Graph VI.8

Turnover of exchange-traded options and futures

In trillions of US dollars



[1] Including Australia and New Zealand.

Sources: FOW TRADEdata; Futures Industry Association; BIS. Graph VI.9

a specific bond's price to broad movements in the term structure has become harder to predict. This increased idiosyncratic risk made government securities less attractive for hedging purposes.

In summer 1999, swap spreads rose sharply

Two episodes in the period under review demonstrate the new role of liquidity in measured credit spreads. In summer 1999, spreads on interest rate swaps rose sharply. This puzzled market observers at the time, given the generally healthy state of macroeconomic indicators and financial asset prices. In retrospect, the widening of spreads appears to have reflected pressures on the liquidity of the available credit instruments deriving from an imbalance between a record volume of corporate bond issuance and temporarily subdued buying interest among investors. Issuers felt obliged to "front-load" issuance schedules in anticipation of the adverse liquidity conditions expected to accompany the millennium date change. Investors were reluctant to absorb the extra volume, because of similar forward-looking concerns about liquidity and perhaps also because of uncertainty about interest rates after the Federal Reserve's move to a tighter policy stance. This imbalance sent bond dealers to the swaps market in an effort to hedge unusual amounts of inventory, while avoiding the idiosyncratic risk that has been perceived in Treasury securities since autumn 1998. The swaps market in turn was new to such hedging activity and did not seem to possess the market-making capacity to easily accommodate these demands.

The turn of the year came and went without incident

Concerns over possible year-end market disruptions soon dissipated, particularly after central banks generally took actions to reassure markets that emergency liquidity would be made available if needed. The actions taken included the broadening of eligible collateral, an increase in the set of counterparties and the provision of new credit facilities. In the event, the turn of the year came and went without significant incident in the markets. Nevertheless, the degree to which financial market activity slowed in the fourth quarter of 1999 can be seen in the sharp decline in the turnover of exchange-traded derivatives contracts, particularly those linked to interest rates (Graph VI.9).

Markets were hit by another bout of rising spreads from late January 2000 onwards. Uncertainty over the US Treasury's debt buyback strategy and prospects for continued monetary tightening led to an inversion of the US dollar yield curve and a renewed shift of speculative and hedging activity to the swaps market. This episode led to increased scrutiny of securities which could potentially serve as market benchmarks in place of US Treasury issues (see below). Ambiguity about the credit status of one class of possible benchmarks, the obligations of US government-sponsored enterprises such as the Federal Home Loan Mortgage Corporation ("Freddie Mac") and the Federal National Mortgage Association ("Fannie Mae"), led to a further widening of spreads in March 2000. Around this time, legislative action to clarify the government's obligations vis-à-vis the debt of these agencies was proposed for the coming year.

Ambiguity about the credit of US agencies led to a widening of spreads

The search for new benchmarks

The changing relative supplies of tradable government and private sector debt pose challenges for markets that have come to rely on a steady, highly liquid supply of default-free securities as benchmarks for price discovery about future interest rates and for the management of market and credit risks. The challenges include forming a consensus as to which types of securities should be considered as benchmarks; fostering the emergence of a supply of benchmark securities that offers sufficient coverage of the yield curve; developing a stable, transparent pricing mechanism; creating supporting instruments such as repos and futures; and formulating market and credit risk management techniques appropriate to the newly chosen benchmarks. The quest for a reliable benchmark for euro-denominated government securities markets, discussed in more detail in Chapter VII, offers an instructive example of some of the issues involved.

Wide acceptance the key requirement for a benchmark

The key requirement for a benchmark instrument is, paradoxically, that it be widely accepted as such. The self-fulfilling process by which an instrument gains this acceptance is very difficult to predict or to influence by external means such as regulation. However, the competition among borrowers to provide new benchmarks, at varying levels of credit quality, has already begun, as can be seen from the increased number of very large debt issues over the past year (Graph VI.10). The US housing credit agencies offered several multi-billion dollar issues at key maturities during the period under review, in an attempt to create alternative US dollar benchmarks at the highest credit level. Benchmark candidates in other parts of the credit spectrum were US dollar offerings by AT&T Corp ($8 billion) and Ford Motor Credit Co ($5 billion), and takeover-related issues in euros by Mannesmann of Germany (€3.0 billion), Repsol of Spain (€3.3 billion) and Tecnost of Italy (€9.4 billion).

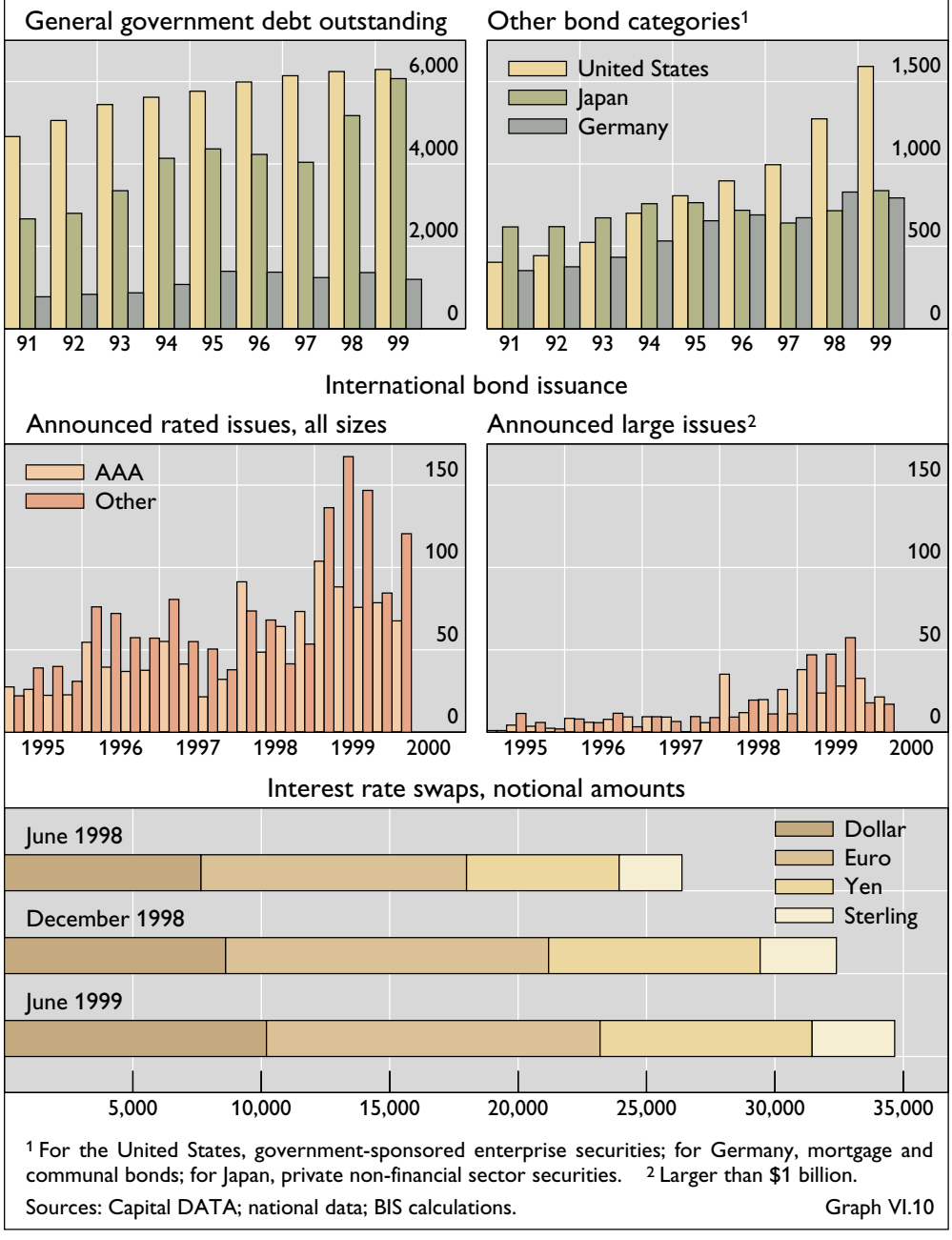
Sharp increase in large issues, particularly by issuers rated below AAA

In terms of overall supply, the slowdown in government issuance and acceleration in private sector issuance has already been noted. The middle panel of Graph VI.10 shows that, coincident with the broad increase in issuance in corporate bonds on the international market, the number of large issues (amounts greater than $1 billion) has increased sharply, particularly among issuers with a rating below AAA. Yet it remains to be seen whether the various

private sector issuers can succeed in achieving the necessary critical mass of trading volume for their candidate benchmarks. Elements contributing to such a critical mass include the fungibility of issues with similar maturities and the availability of futures, repo and other supporting markets. In this regard, it is notable that futures and options contracts on five- and 10-year US agency securities began trading on the Chicago Board of Trade in March 2000. In recent years, however, trading of derivatives on organised exchanges has been essentially stagnant (Graph VI.9), whereas over-the-counter (OTC) markets have continued to grow (Graph VI.10 (bottom panel)). This suggests that the availability of OTC derivatives will be another necessary element in the adoption of any future benchmark instrument.

The emergence of new benchmarks

In billions of US dollars



[1] For the United States, government-sponsored enterprise securities; for Germany, mortgage and communal bonds; for Japan, private non-financial sector securities. [2] Larger than $1 billion.

Sources: Capital DATA; national data; BIS calculations. Graph VI.10

Regarding pricing stability, it is notable that the decline of 10-year US Treasury yields in the first quarter of 2000 almost matched the rise in spreads. As a result, the overall level of swap yields and high quality corporate rates at that maturity remained virtually unchanged. This suggests that, to some degree, investors and borrowers may have already begun to think in terms of the overall price of risky credit, rather than its price relative to a benchmark. However, price transparency will remain limited as long as market participants lack a strong consensus as to the appropriate indices for the different classes of private sector debt. The episodes described above illustrate that even large and growing asset categories such as swaps can be subject to sudden and unexpected changes in price behaviour.

Focus on overall price of risky credit rather than its price relative to a benchmark

The shift to new benchmarks is likely to affect not just the pricing practices of fixed income markets, but many other aspects of the financial system as well. In particular, if private sector obligations are eventually asked to fill the role currently still performed by government bonds, an additional dimension of complexity will be added to the management of market and credit risk exposures. Market participants will need to develop improved techniques for incorporating credit risk considerations in hedging and collateral management. The task of pricing and hedging credit risks has been facilitated by the rapidly growing market in credit derivatives. While market participants will no doubt continue to develop techniques to meet these challenges, the process may be accompanied by further episodes of turbulence as liquidity conditions for the different possible benchmark securities are tested, the risks involved become better understood, and new market standards gain acceptance.

Such a transition to private benchmarks poses certain challenges for policymakers. Faced with fiscal surpluses or diminishing deficits, governments are fighting rearguard actions to preserve liquidity, primarily by maintaining the size of gross issuance in specific maturities even as net issuance declines. The issue for debt management is then the selection of securities that are not only important as benchmarks, but also have uses that are difficult for private markets to replicate. At the same time, central banks are confronted with increasing noise in yield curves and measured spreads. This noise clouds information about macroeconomic and credit prospects and alters the monetary transmission mechanism in unpredictable ways. Finally, the authorities need to prepare for sudden bouts of illiquidity that may disrupt the financial system.

The noise in yield curves and spreads alters the transmission mechanism

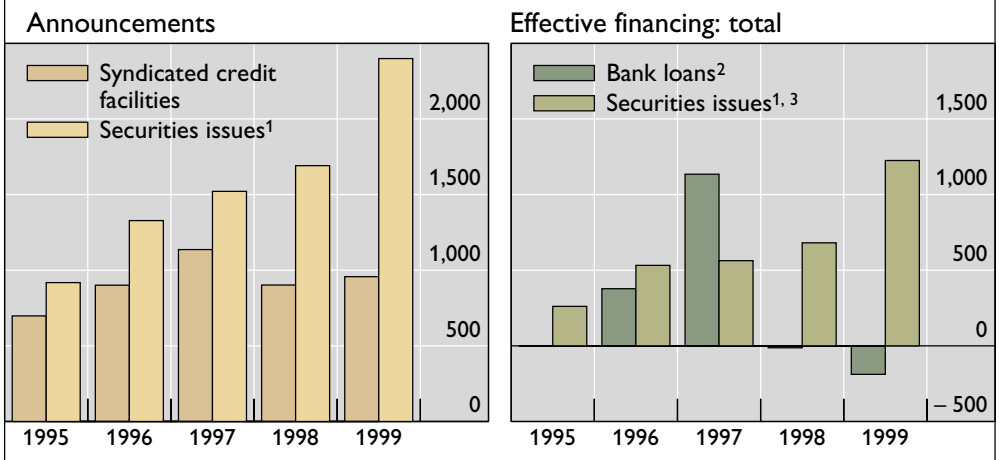
The international banking market

As financing through international securities surged in 1999, bank loan financing continued to lag behind (Graph VI.11). The world's major banks seemed to have little choice but to contribute to this development by investing heavily in debt securities and to relegate their traditional lending activity to the sidelines. Nonetheless, lending to non-bank borrowers in developed countries began to recover from the low levels of 1998, most notably owing to a few large deals related to mergers and acquisitions. However, emerging market borrowers in Latin America showed a distinct preference for securities financing over bank

The major banks found their traditional lending activity relegated to the sidelines

Activity in international bank loans and securities markets

In billions of US dollars



[1] Includes both money market instruments and long-term bonds and notes. [2] Exchange rate adjusted changes in gross international bank loans; data unavailable prior to 1996. [3] Gross issues minus repayments.

Sources: Bank of England; Capital DATA; Euroclear; ISMA; Thomson Financial Securities Data; national data; BIS. Graph VI.11

credit, while those in Asia accelerated their loan repayments in the second half of the year. Following a period of contraction in the first half of 1999, the interbank market among developed countries suddenly found itself flush with funds, and the banks could evidently find few new borrowers.

Bank flows to industrial countries

The world's major banks found it easier to participate in the buoyant debt securities markets than to pursue opportunities in their traditional international lending markets. During 1999, the banks' net purchases of debt securities exceeded $300 billion, more than three times their net lending to non-bank borrowers in developed countries (Table VI.3). The banks provided their strongest boost to the securities markets during the first quarter, when they made about a third of their securities purchases for the year. Deploying large repayment flows from their loans abroad, banks in Japan channelled nearly $130 billion into debt securities during the year. Banks in Germany and France were also major investors in securities, mainly in US, German and Italian bonds.

Banks in Japan, Germany and France were major investors in securities

The increase in banks' net lending to non-bank borrowers in developed countries in 1999 represented no more than the recovery of activity that had virtually disappeared in 1998. The second quarter of 1999 accounted for the bulk of this new business, with banks providing $67 billion in net lending, an amount equivalent to over 90% of their securities purchases during the quarter. The major lenders were banks in Japan and the United Kingdom, and the biggest loans tended to be those that helped finance merger and acquisition activity. Lending flows fell in the third quarter, when non-bank borrowers in the United States repaid $25 billion of their loans, but recovered somewhat in the fourth quarter.

Main features of cross-border claims of BIS reporting banks[1]

	1998	1999	1998	1999				Stocks at end-Dec 1999
	Year	Year	Q4	Q1	Q2	Q3	Q4	
	in billions of US dollars							
Claims on developed countries	567.3	449.9	61.2	94.2	56.8	193.9	105.0	7,562.9
Interbank loans	288.7	29.9	–16.6	– 15.4	– 82.2	123.5	4.1	4,416.7
Loans to non-banks	24.2	103.4	14.1	6.9	66.8	5.4	24.3	1,319.0
Debt securities[2]	254.4	316.6	63.8	102.8	72.3	65.0	76.6	1,827.3
Claims on offshore centres	–178.0	–105.6	–72.5	– 68.9	– 45.0	–26.4	34.7	1,207.9
Interbank loans	–172.0	–139.3	–24.2	– 77.0	– 51.8	–47.7	37.2	858.4
Loans to non-banks	– 27.1	6.3	–50.2	2.1	0.9	12.7	–9.3	224.8
Debt securities[2]	21.0	27.4	2.2	6.1	5.9	8.6	6.7	124.7
Claims on developing countries[3]	– 83.0	– 71.2	–25.6	– 9.4	– 20.7	–34.6	–6.5	857.1
Interbank loans	– 63.9	– 61.6	– 8.5	– 11.3	– 19.7	–22.3	–8.3	340.5
Loans to non-banks	– 12.4	– 14.6	–12.2	2.4	– 3.6	–12.4	–1.0	389.9
Debt securities[2]	– 6.8	4.9	– 4.9	– 0.5	2.6	0.1	2.8	126.8
Unallocated	– 33.9	– 20.0	–10.2	– 3.0	– 0.3	–13.4	–3.3	195.6
Total	272.4	253.1	–47.1	13.0	– 9.2	119.5	129.9	9,823.5
Interbank loans	28.1	–219.9	–55.4	–111.2	–153.5	34.7	10.1	5,684.0
Loans to non-banks	– 26.9	92.2	–58.8	– 0.7	61.5	5.0	26.4	1,966.8
Debt securities[2]	271.2	380.7	67.1	124.9	82.7	79.8	93.4	2,172.7
Memorandum:								
Syndicated credits[4]	*902.0*	*957.1*	*219.8*	*172.5*	*271.1*	*264.3*	*249.2*	

[1] Changes in amounts outstanding excluding exchange rate valuation effects. [2] Partly estimated. The data also include other assets, which account for less than 5% of the total claims outstanding. [3] Including eastern European countries. [4] Announced new facilities.

Table VI.3

Flows to emerging markets

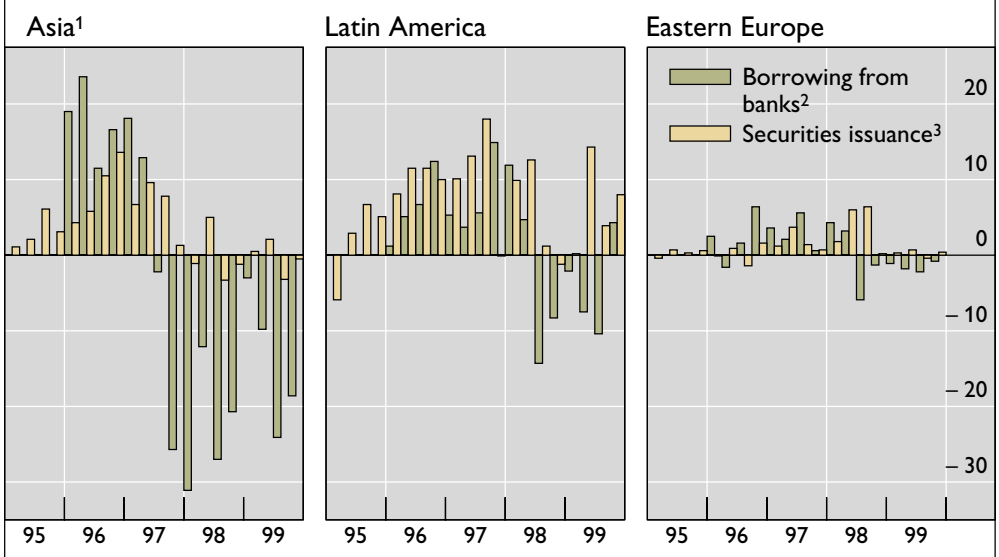
Having been shunned by international banks during the Asian crisis in 1997 and in the wake of the Russian debt moratorium in 1998, emerging market borrowers returned the favour in 1999. By the second quarter of the year, notwithstanding the Brazilian currency crisis in January, the banks seemed ready to resume lending to emerging markets in a substantial way. Indeed, two power utilities in Brazil obtained syndicated loans, albeit at credit spreads exceeding 800 basis points. However, there were few other borrowers from emerging markets. In the second quarter, after years of simply servicing their bank loans, these borrowers suddenly accelerated their repayments. The third quarter saw the largest decline in bank claims on developing countries since the sharp cutback in the third quarter of 1998. Bank claims fell by $35 billion, nearly four times the decline of the first quarter. Such an acceleration of repayments to banks, well after the 1998 credit squeeze, suggests a borrower-driven move away from bank credit.

The bulk of loan repayments came from emerging Asia

While the bulk of loan repayments came from emerging Asia, a shift from bank loans to securities financing was more apparent in Latin America (Graph VI.12). In Asia, current account surpluses and equity inflows obviated any need for external debt financing. The region made loan repayments of $56 billion during 1999 as a whole, with $24 billion in the third quarter alone and

International bank and securities financing by region

By residence, in billions of US dollars



[1] Excluding Hong Kong, Japan and Singapore. [2] Exchange rate adjusted changes in BIS reporting banks' loans vis-à-vis the respective regions; data unavailable prior to 1996. [3] Net issues of international money market instruments, bonds and notes.

Sources: Bank of England; Capital DATA; Euroclear; ISMA; Thomson Financial Securities Data; national data; BIS. Graph VI.12

$19 billion in the fourth. The largest repayments came from China, Thailand and Indonesia. In Latin America, current account deficits required some debt financing but the region relied more heavily on securities financing than on bank loans. Latin American borrowers repaid a net amount of $16 billion during the year, with $10 billion in repayments during the third quarter more than offsetting net borrowing during the fourth quarter. The biggest repayments came from Brazil and Mexico.

The interbank market and offshore centres

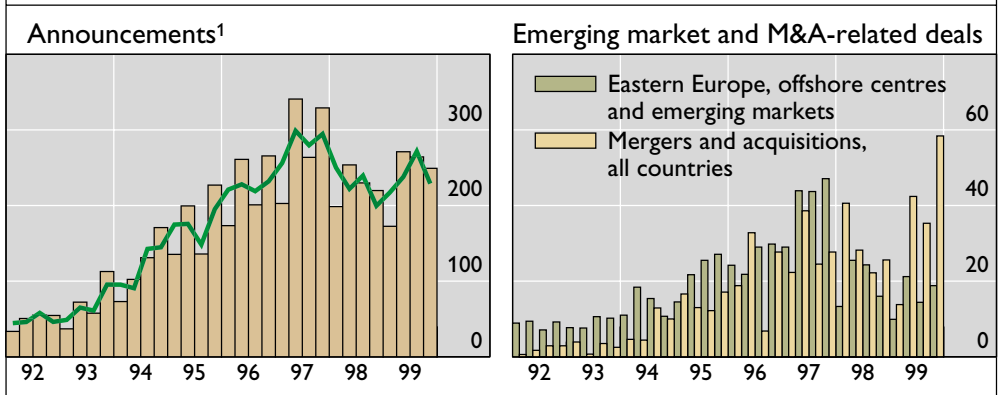
Retreat from Hong Kong and Singapore a reversal of round-tripping from Japan

A retreat by major banks from offshore centres coincided with the rush into securities. The banks' claims on these centres fell by $106 billion in 1999. Much of the decline was accounted for by Hong Kong and Singapore and took place in the first half of the year. An important part of this retreat represented a reversal of a round-tripping of funds from banks in Japan to banks in Hong Kong, and to a lesser extent Singapore, and back to non-bank borrowers in Japan. These reverse flows had been going on since mid-1997 and continued until the third quarter of 1999. During the first three quarters of 1999, non-bank borrowers in Japan repaid $40 billion to banks in Hong Kong and Singapore. These banks in turn used the money to help cover deposit withdrawals by banks in Japan, thus completing the circle. From Japan, some of this money seems to have found its way into securities purchases.

The interbank market in developed countries recovered strongly in the second half of the year. As long as the banks could readily find new borrowers or other investment opportunities to place the funds they received from non-bank customers, they did not need to lend very much to one another.

Announced facilities in the international syndicated credit market

In billions of US dollars



[1] The line represents seasonally adjusted data.

Sources: Capital DATA; BIS.

Graph VI.13

This seems to have been the case during the first half of 1999, when interbank loans fell by $98 billion. During the third quarter, however, the banks received unusually large repayments of $35 billion from emerging markets and $25 billion from non-bank borrowers in the United States. To absorb the funds, the inter-bank market passed them through a chain of banks in a portfolio adjustment process that resulted in a temporary expansion of interbank balance sheets. As a result, lending among the banks in developed countries surged to $124 billion during the third quarter after several quarters of cutbacks in such claims.

International syndicated lending

Acquisition deals accounted for the rise in syndicated loans

The syndicated loan market provided the bulk of new lending to non-bank borrowers in 1999. During the year, announced facilities for the market as a whole amounted to $957 billion, a modest increase from 1998 but still below that of the peak year of 1997 (Graph VI.13). Deals for mergers and acquisitions accounted for most of the rise in the market. They were dominated by a few large deals, including a $12 billion facility in three tranches to finance the acquisition of Airtouch Communications in the United States by Vodafone Plc in the United Kingdom during the third quarter and an £8 billion facility in two tranches arranged to support the purchase by Mannesmann AG in Germany of Orange Plc in the United Kingdom during the fourth quarter. These deals helped to make the year as a whole a record one for merger-related business, with $150 billion in announced facilities of that type. In contrast to the buoyancy of acquisition financing, syndicated lending for emerging market borrowers remained subdued, at $64 billion for the year, down 23% from 1998.